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###ÿÿ#####ÿ□#ÿÿd#######d############The main point to CRIMS is expressed by the acronymn □ITS□ - Identify, Track and Store. The preferred methodology for identification within CRIMS is the Relative Risk Weighting process where three technical risk profiles of a WBS element are □scored□ and the scores used to develop ratios that are applied to the point estimate as multipliers to generate the high and low ends of a triangular distribution. Monte Carlo simulation is used to combine these distributions into a summary distribution from which a cost is selected for budgeting at some confidence level. After contract award, the govt and contractor work together in managing the cost-risk with the help of the earned value management system of the contractor. After the contract is over, initial estimates are compared with actuals and lessons learned are stored in a database for future evaluation and projections.

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TECH DES/ENG COMPLEXITY SCHEDULE TOTAL RISK (0.25)(0.35)(0.2)High VH**SCOREPessimistic** VH HIGH (0.2)Profile (5) (7.5)(6) (5.3)5.9 Reference MOD MOD MOD MOD Profile (3.5)(3) ML(2.2)2.9 Optimistic LOW MOD (2.7)MOD Profile (1) (2.5) 2.0Ref (2.7)(2.2)Profile Calc: (0.35)(3) + (0.25)(3.5) + (0.2)(2.7) + (0.2)(2.2) = 2.9P

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ÿÿ####ÿÿ####ÿ∏#ÿÿd#######d########Since, in most cases, the best information we have is low, most likely and high estimates (or can credibly develop), a triangular distribution is used (bottom of chart). The development of the low and high ends of the triangle are the result of factors applied to the government point cost estimate (GPE). A risk category matrix (top of chart) is developed utilizing risk categories and weighted using the Analytical Hierarchy Process (AHP), a purely mathematical technique for generating valid, ratio-level (vice ordinal-level) weights. The AHP is also used to weight the Very Low to Very High scales. Three profiles of the WBS element are rated against the weighted risk categories using the weighted scales and three risk ∏scores∏ are generated representing how risky each is perceived to be by the raters, mostly engineers. Two ratios are developed from these three risk scores and used as factors on the point cost estimate (assumed to be the most likely in the triangle) to generate the low and high ends of the triangular distribution. Since the CARD specifications are rated for the Reference Profile and result in the Reference Profile risk score and the CARD specifications result in the Reference Point cost estimate for that WBS element, there is an implied equivalency between the Reference Profile risk score and the Reference Point cost estimate. In other words, the Reference Profile risk score represents the WBS in qualitative, technical risk form. The Reference Point cost estimate represents the WBS in cost form. It is this equivalency that justifies the application of the ratios to the point cost estimate that generates the upper and lower bounds of the cost-risk triangle.

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###ÿÿ#####ÿ□#ÿÿd#######d############The main point to CRIMS is expressed by the acronymn □ITS□ - Identify, Track and Store. The preferred methodology for identification within CRIMS is the Relative Risk Weighting process where three technical risk profiles of a WBS element are □scored□ and the scores used to develop ratios that are applied to the point estimate as multipliers to generate the high and low ends of a triangular distribution. Monte Carlo simulation is used to combine these distributions into a summary distribution from which a cost is selected for budgeting at some confidence level. After contract award, the govt and contractor work together in managing the cost-risk with the help of the earned value management system of the contractor. After the contract is over, initial estimates are compared with actuals and lessons learned are stored in a database for future evaluation and projections.

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###ÿÿ#####ÿ \square #ÿÿd#######d###### $^{\#}$ ##At the 36 month point, and another award fee determination point, another RRW is performed confirming that the contractor is indeed lowering the risk. The EAC is consistently lower than the ACO.õ

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###ÿÿ#####ÿ \square #ÿÿd#######d########+##+#+#At the end of the effort the actual is lower than the ACO - a very good result. Our initial budget, identified at the 50% mark by tradition, is now seen as too conservative. This is also a good sign for the long term (not so good perhaps for the PM who ended up with too much money at the end, however) and means that acquisition reform is working, resulting in more programs for limited TOA. It appears that the program manager could have been much more aggressive in being a risk manager due to the actual final cost, overlayed on the original \square S \square -curve, being at about the 12% confidence level. This indicates empirically that AF managers can bring in programs at lower than 50% budgets, ensuring that scarce dollars be stretched further successfully. #

########a#Öõ¶ú□

☐Risk-driven cost growth☐ (RDCG) is cost growth, overruns or funded changes, linked to technical risk categories originally used to identify costrisk in the cost estimate (e.g., technology, complexity, schedule, design/engineering, manufacturing, integration, etc). ☐Externally-driven cost growth☐ (EDCG) is cost growth, overruns or funded changes, linked to external factors (e.g., requirements changes, technical enhancements not driven by risk, perturbations to budgets by AF, OSD or other agencies causing schedule changes, etc.).

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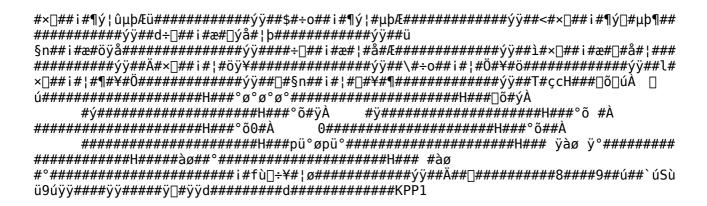
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##ÿÿ####ÿy#####ÿ□#ÿÿd############k###k##Contractor Has to Budget for Risk-Driven Cost GrowthGovernment Has to Verify Contractor Estimates of RDCGThe E3 Factor is Used to Calibrate the Government RPE, Adjusted by the AC, into a Number Equivalent to BCC Plus an Empirically Derived Amount for RDCGProvides Government Evaluators with an Empirical Foundation for Verification of Contractor Risk Estimatest

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c#ÿÿ####ÿÿ#####ÿ \square #ÿÿd#######################The Govt RPE is the Initial Estimate of the ECCBased on non-Acquisition Reform Era ProgramsApplying the AC andE3 to the Govt RPE then Gives us an Estimate of BCC plus RDCG (= 120), the Acquisition Reform Risk Coste.g., AC = 0.75; E3 = (ECC-EDCG)/ECC E3 = (150-30)/150) = 120/150 = 0.8RC

= 0.75*0.8 = 0.6RC*GRPE = 0.6*200 = 120Use Acq Reform Risk Cost to Compare to the Contractor MPC for a Risk Crosscheck in the Acquisition Reform Era#

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